



**UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/148,126 09/04/98 JECH

D 20721/04010

IM62/0410

EILEEN T MATHEWS
CALFEE HALTER & GRISWOLD
1400 MCDONLD INVESTMENT CENTER
800 SUPERIOR AVENUE
CLEVELAND OH 44114

EXAMINER

KOEHLER, R

ART UNIT	PAPER NUMBER
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1775

(0)

DATE MAILED: 04/10/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Notice of Allowability

Application No.

09/148,126

Applicant(s)

Jech, et al.

Examiner

Robert Koehler

Group Art Unit

1775

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

☒ This communication is responsive to applicants' Preliminary Amendment filed on May 6, 1999.

☒ The allowed claim(s) is/are 1-41.

☐ The drawings filed on _____ are acceptable.

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☒ Applicant MUST submit NEW FORMAL DRAWINGS

☒ because the originally filed drawings were declared by applicant to be informal.

☐ including changes required by the Notice of Draftsperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. _____.

☐ including changes required by the proposed drawing correction filed on _____, which has been approved by the examiner.

☐ including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 6., 7., & 9.

☒ Notice of Draftsperson's Patent Drawing Review, ~~PTO-948~~ Substitute PTO-948

☐ Notice of Informal Patent Application, PTO-152

☐ Interview Summary, PTO-413

☐ Examiner's Amendment/Comment

☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

☒ Examiner's Statement of Reasons for Allowance RRK.

Deborah Jones
DEBORAH JONES
SUPERVISORY PATENT EXAMINER

Art Unit: 1775

DETAILED ACTION

Allowable Subject Matter

Claims 1 to 41 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art does not teach, suggest, or disclose applicants' claimed functionally-graded metal substrate having a functional insert and a surrounding body which surrounds the functional insert wherein the functional insert and the surrounding body are two different metal compositions in the x-y plane of the substrate and wherein the functional insert has a higher thermal conductivity than the surrounding body and the surrounding body has a lower coefficient of thermal expansion than the functional insert. Also, the prior art does not teach, suggest, or disclose a process for making a functionally-graded metal substrate by filling a cavity of a metal body with a functional insert metal (either as a powder composition or as a solid composition) and bonding the metal body to the functional insert.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Relevant Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 5,126,102 (Takahashi, et al.) teaches a method of preparing a composite material having excellent joint strength and heat conductivity. The composite material includes a high melting material such as tungsten and a low melting material such as copper. The patent teaches that pores are formed in a high melting substrate material to obtain a material having a porosity distribution with the porosity gradually decreasing from a region defined in the high melting material toward a further region. The next step involves infiltrating a low melting material into the pores of the substrate material to obtain a gradient material having a gradient distribution of a composite ratio of the high melting material and the low melting material.

Drawings

This application has been filed with **informal drawings** which are acceptable for examination purposes only. They have not been reviewed by a PTO draftsman at this time. **Formal drawings** will be required when the application is allowed. Applicants' letter of September 4, 1998 stated that 4 sheets of **informal drawings** were being submitted with the application papers.

The application having been allowed, formal drawings are required in response to this Office action.

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Formal drawings are now required and must be filed within the THREE MONTH shortened statutory period set for reply in the "NOTICE OF ALLOWABILITY" (PTOL-37 or PTO-37). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a). Failure to timely submit the drawings will result in **ABANDONMENT** of the application. The drawings should be submitted as a separate paper with a transmittal letter which is addressed to the Official Draftsperson. The art unit number, application number and number of drawing sheets should be written on the reverse side of the drawings.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Robert Koehler whose telephone number is (703) 308-1974. The Examiner can normally be reached on Tuesday to Friday from 8:30 AM to 8:00 PM. The Examiner can also be reached on alternate Mondays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Deborah Jones, can be reached on (703) 308-3822. The fax phone number for this Art Unit is (703) 305-5436. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center receptionist whose telephone number is (703) 308-0661.

R R Koehler

April 9, 2000


DEBORAH JONES
SUPERVISORY PATENT EXAMINER



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

File 10

NOTICE OF ALLOWANCE AND ISSUE FEE DUE

IM62/0410

EILEEN T MATHEWS
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APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
09/148,126	09/04/98	041	KOEHLER, R	1775 04/10/00
First Named Applicant	JECH, 35 USC 154(b) term ext. = 0 Days.			

TITLE OF INVENTION FUNCTIONALLY GRADED METAL SUBSTRATES AND PROCESS FOR MAKING SAME

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
1 20721/04010	428-547.000	K93	UTILITY	NO	\$1210.00	07/10/00

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED.

THE ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.

HOW TO RESPOND TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is changed, pay twice the amount of the FEE DUE shown above and notify the Patent and Trademark Office of the change in status, or
- B. If the status is the same, pay the FEE DUE shown above.

If the SMALL ENTITY is shown as NO:

- A. Pay FEE DUE shown above, or
- B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.

II. Part B-Issue Fee Transmittal should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE. Even if the ISSUE FEE has already been paid by charge to deposit account, Part B Issue Fee Transmittal should be completed and returned. If you are charging the ISSUE FEE to your deposit account, section "4b" of Part B-Issue Fee Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give application number and batch number. Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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